

BEARING # BACB10	TOOL#	А	MATERIAL
FBO4-AMT	KSTFB04P-R	#10-24 UNC	4140 Q&T RND. BAR Ø7/8 x 7/8

KSTFB##P-R SERIES PORT, RIGHT ANGLE TRI-ROLLER SWAGING TOOLS FOR BACB10FB BEARINGS

DWG NO. TOOL#(see chart)-15 PERRITT

APPROVED

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
DECIMALS FRACTIONS ± 1/32

.XXX ± .005 .XX ± .01 .X ± .1 ANGLES ±.5°

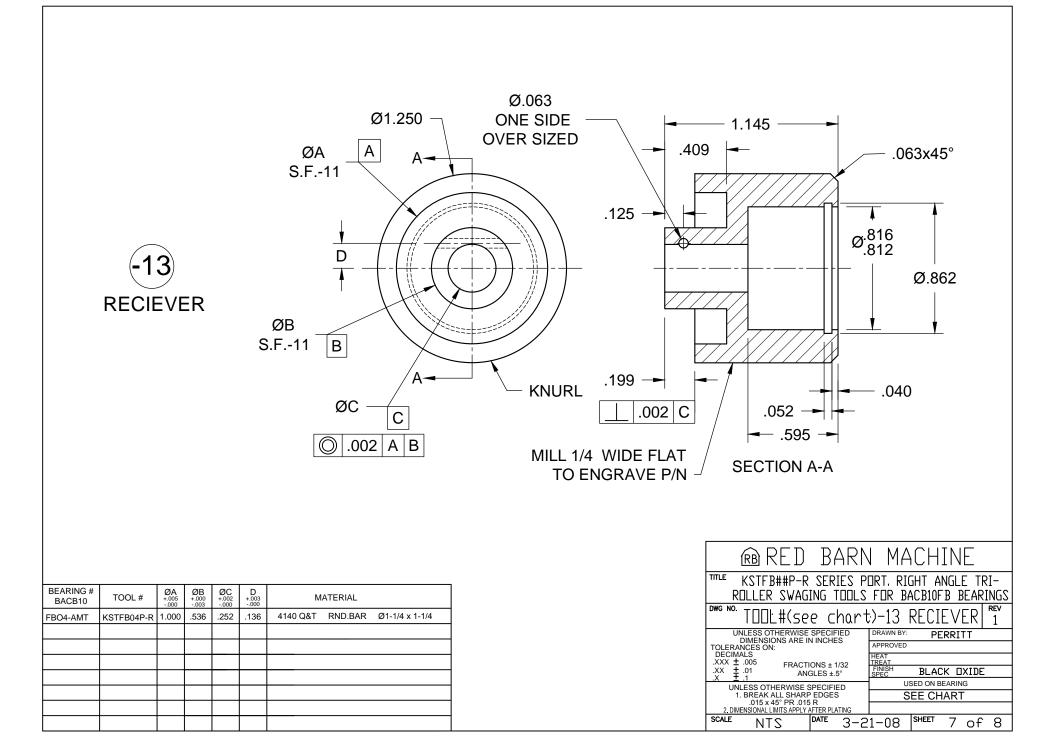
UNLESS OTHERWISE SPECIFIED

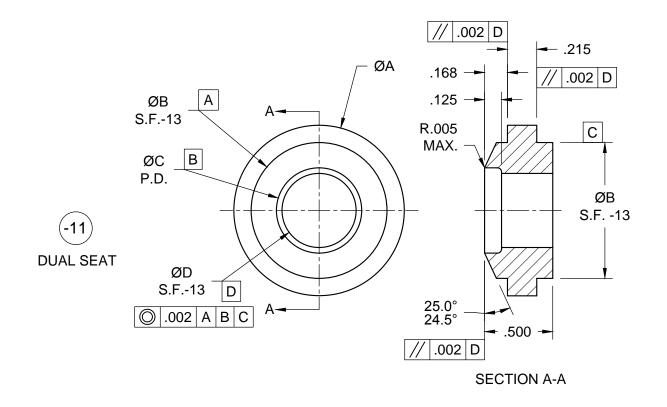
1. BREAK ALL SHARP EDGES
.015 x 45° PR .015 R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING

HEAT TREAT FINISH SPEC BLACK DXIDE USED ON BEARING SEE CHART

SCALE DATE NTS

3-21-08 SHEET 8 of 8





BEARING # BACB10	TOOL#	ØA +.010 020	ØB +.000 003	ØC +.002 000	ØD +.003 000	MATERIAL		
FBO4-AMT	KSTFB04P-R	1.250	.996	.617	.542	4140 Q&T RND. BAR Ø1-1/4 x 5/8		

KSTFB##P-R SERIES PORT, RIGHT ANGLE TRI-ROLLER SWAGING TOOLS FOR BACB10FB BEARINGS

DWG NO. DRAWN BY: PERRITT

BLACK DXIDE

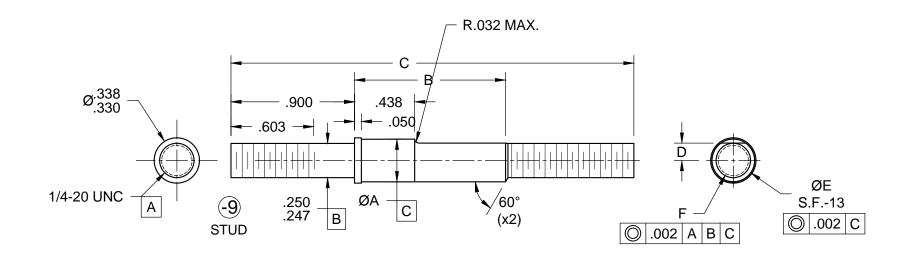
USED ON BEARING SEE CHART

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS APPROVED .XXX ± .005 .XX ± .01 .X ± .1 FRACTIONS ± 1/32 ANGLES ±.5°

UNLESS OTHERWISE SPECIFIED

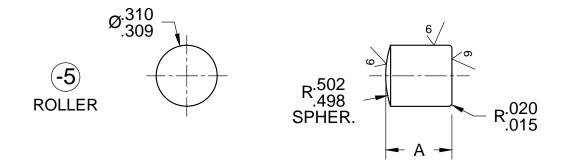
1. BREAK ALL SHARP EDGES
.015 x 45° PR .015 R
2. DIMENSIONAL LIMITS APPLY AFTER PLATING

3-21-08 SHEET 6 of 8 NTS



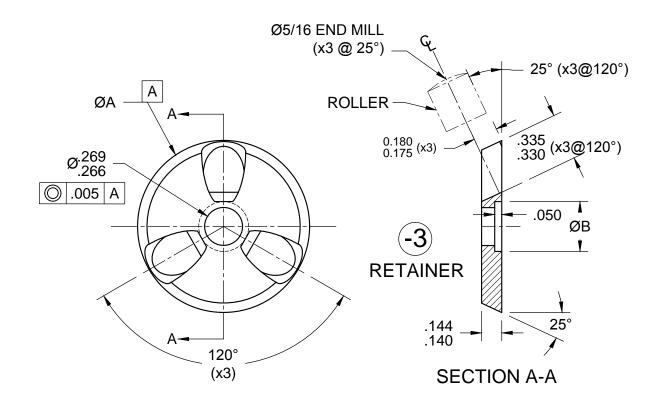
BEARING # BACB10	TOOL#	ØA +.000 002	B +.010 010	C +.010 010	D +.000 005	ØE +.000 005	F	MATERIAL
FBO4-AMT	KSTFB04P-R	.248	1.040	2.563	.100	.248	#10-24 UNC	4140 Q&T RND. BAR Ø3/8 x 2-7/8

® RED	BARN	I MA	CHI	ΝE	
TITLE KSTFB##P-R ROLLER SWAG					
DWG NO. TOOL#	(see ch	art)-9	:UT2	D	REV 1
UNLESS OTHERWISE DIMENSIONS ARE I		DRAWN BY:	PER	RITT	
TOLERANCES ON:	N INCHES	APPROVED			
DECIMALS .XXX ± .005 FRACT	IONS ± 1/32	HEAT TREAT			
	GLES ±.5°	FINISH SPEC	BLACK	DXIDE	
UNLESS OTHERWISE S	SPECIFIED	US	SED ON BEAI	RING	
1. BREAK ALL SHARF	EDGES				
.015 x 45° PR .015 2. DIMENSIONAL LIMITS APPLY					
scale NTS	DATE 3-2	1-08	SHEET C	5 of	8



BEARING # BACB10	TOOL#	A +.001 001	MATERIAL
FBO4-AMT	KSTFB04P-R	.335	.310 MINUS GAUGE PIN MSC #89031009

TITLE KSTFB##P-R SERIES PORT. RIGHT ANGLE TRI-								
ROLLER SWAGING TOOLS FOR BACB10FB BEARING								
DWG NO. TDOL#(see chart)-5 ROLLER 1								
	see chui	(/ J	NUL	_LIN		1		
UNLESS OTHERWISE DIMENSIONS ARE II		DRAWN BY:	PE	RRIT1				
TOLERANCES ON:	N INCHES	APPROVED						
DECIMALS .XXX ± .005	IONS ± 1/32	HEAT TREAT	RC	55-6	0			
	GLES ±.5°	FINISH SPEC						
UNLESS OTHERWISE S	SPECIFIED	USED ON BEARING						
1. BREAK ALL SHARF .015 x 45° PR .015	EDGES	SEE CHART						
2. DIMENSIONAL LIMITS APPLY								
SCALE NTS	DATE 3-2	1-08	SHEET	4 (of.	8		



<u>NOTES</u>
1. BREAK ALL SHARP CORNERS (.015/.03).

BEARING # BACB10	TOOL#	ØA +.002 002	ØB +.010 000	P.D. REF.	MATERIAL
FBO4-AMT	KSTFB04P-R	1.199	.350	.617	BRONZE RND. BAR Ø1-1/4 x 3/8

® RFD	BARN	MACHINE
	ווועב	

TLE KSTFB##P-R SERIES PORT. RIGHT ANGLE TRI-ROLLER SWAGING TOOLS FOR BACB10FB BEARINGS

DWG NO. TOOL #(see chart)-3 RETAINER 1

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
DECIMALS
.XXX ± .005 FRACTIONS ± 1/32
.XX ± .01 ANGLES ±.5°
.X ± .1

UNLESS OTHERWISE SPECIFIED
1. BREAK ALL SHARP EDGES

DRAWN BY: PERRITT
APPROVED
HEAT
TREAT
TREAT
TREAT
TREAT
SPEC
USED ON BEARING
SPEC
SEE CHART

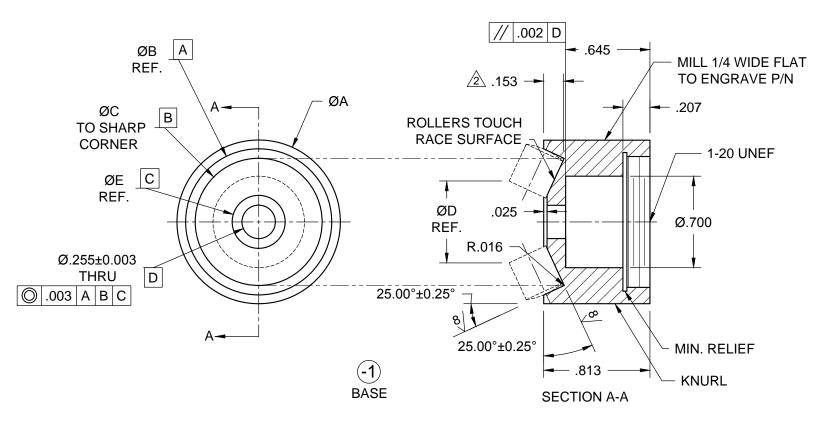
3 of 8

UNLESS OTHERWISE SPECIFIED

1. BREAK ALL SHARP EDGES
0.15 x 45° PR 0.15 R

2. DIMENSIONAL LIMITS APPLY AFTER PLATING

SCALE NTS DATE 3-21-08 SHEET



NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).

DIMENSION TO BOTTOM OF R.016=.153; DIMENSION TO SHARP CORNER=.158.

 RACE SURFACE OF -1 BASE MUST BE SMOOTH AND FREE OF GROOVES & MACHINING MARKS.

- 4. MUST HOLD ØC POSITION AND ANGLE TOLERANCES TO MAINTAIN PITCH DIA...
- 5. DO FIRST ARTICLE INSPECTION BEFORE HEAT TREATING.

® RED BARN MACHINE

TLE KSTFB##P-R SERIES PORT. RIGHT ANGLE TRI-ROLLER SWAGING TOOLS FOR BACB10FB BEARINGS

DWG NO. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DRAWN BY: PERRITT APPROVED TOLERANCES ON: DECIMALS RC 55-60 .XXX ± .005 FRACTIONS ± 1/32 .XX ± .01 BLACK DXIDE ANGLES ±.5° USED ON BEARING UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES SEE CHART .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING SCALE 3/21/08 2 of 8 STN

FBU4-AIVIT	NOTEDU4P-R	1.230	1.109	.903	.017	.391	0-1 DRILL ROD	Ø1-1/4 X 1

ØC +.006 -.002

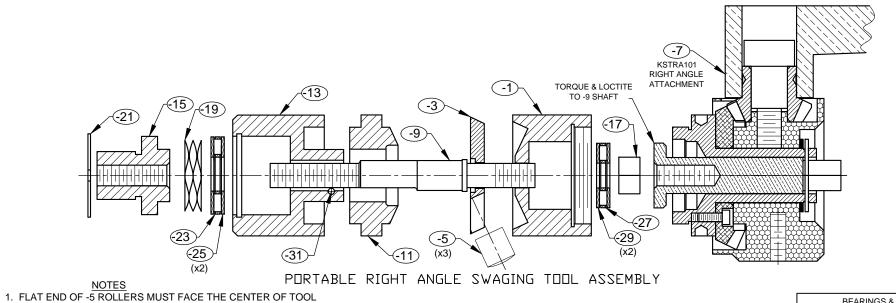
MATERIAL

BEARING #

BACB10

TOOL#

	REVISIONS							
REV	DESCRIPTION	DATE	INITIAL	APPROVED				
1	CHANGED -5 ROLLER RADUIS FROM .005010, TO .0150203 END MILL DEPTH ENLARGED FROM .329 ±.005 FOR ROLLER CLEARANCE. ALSO SHORTENED -9 °C DIMENSION FROM 2.813 TO 2.563 AND ADDED LOCTITE NOTE FOR SHAFT.	7/7/08	WP	DW				



- WHEN ASSEMBLED.
- 2. TIGHTEN -17 LOCK NUT UNTIL -3 RETAINER HAS .004 CLEARANCE OF -5 ROLLERS. -5 ROLLERS AND -3 RETAINER MUST TURN SMOOTHLY ON -1 BASE WHEN ASSEMBLED.

Process of Part Oty Description Mat. Or Specifications Process of Part Oty Description Process of Part Oty Description Process of Part Other Other									_
-3 1 RETAINER SEE CHART 3 -5 3 ROLLER SEE CHART 4 -7 1 RIGHT ANGLE ATTACHMENT SEE TOOL # KSTRA101 1 -9 1 STUD SEE CHART 5 -11 1 DUAL SEAT SEE CHART 5 -13 1 RECEIVER SEE CHART 6 -15 1 TENSIONER SEE CHART 7 -15 1 TENSIONER SEE CHART 8 -16 -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1 -18 1 CREST TO CREST FLAT WIRE WAVE SPRING STEEL 750 0D., 350 ID., WIRE THICK, 013, THREE TURNS SMALLEY RING CO. #CS075-H1 1	SSY ASSY QTY QTY	Y B/O	PART#	UNIT QTY	DESCRIPTION	MAT.	B/O INFORMATION OR SPECIFICATIONS	Pg.	
-5 3 ROLLER SEE CHART 4 -7 1 RIGHT ANGLE ATTACHMENT SEE TOOL # KSTRA101 -9 1 STUD SEE CHART 5 -11 1 DUAL SEAT SEE CHART 6 -13 1 RECEIVER SEE CHART 7 -15 1 TENSIONER SEE CHART 8 B/O -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1 B/O -19 1 CREST TO CREST FLAT WIRE WAVE SPRING STEEL 750 OD., .550 ID., WIRE THICK013, THREE TURNS SMALLEY RING CO. #CS075-H1 1 B/O -21 1 INTERNAL SNAP RING STEEL 07/8 BORE MCMASTER-CARR #99142A410 1 B/O -23 1 THRUST BEARING (SPRING SIDE) STEEL 03/8 ID. x 13/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-613) 1 B/O -25 2 BEARING WASHER STEEL 03/8 ID. x 13/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-613) 1 B/O -29 2 BEARING WASHER STEEL 01/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -29 2 BEARING WASHER STEEL 01/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -31 1 ROLL PIN			-1	1	BASE		SEE CHART	2]
-7 1 RIGHT ANGLE ATTACHMENT SEE TOOL # KSTRA101 -9 1 STUD SEE CHART 5 -11 1 DUAL SEAT SEE CHART 66 -13 1 RECEIVER SEE CHART 7 -15 1 TENSIONER SEE CHART 8 B/O -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1 B/O -19 1 CREST TO CREST FLAT WIRE WAVE SPRING STEEL 750 OD, .550 ID, WIRE THICK013, THREE TURNS SMALLEY RING CO. #CS075+H1 1 B/O -21 1 INTERNAL SNAP RING STEEL 07/8 BORE MCMASTER-CARR #99142A410 1 B/O -23 1 THRUST BEARING (SPRING SIDE) STEEL 03/8 ID. x 13/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-613) 1 B/O -25 2 BEARING WASHER STEEL 03/8 ID. x 13/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-613) 1 B/O -27 1 THRUST BEARING STEEL 01/4 ID. x 11/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-611) 1 B/O -29 2 BEARING WASHER STEEL 01/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 1 BEARING WASHER STEEL 01/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 1 BEARING WASHER STEEL 01/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -31 1 ROLL PIN STEEL 01/16 x 3/8			-3	1	RETAINER		SEE CHART	3	
-9			-5	3	ROLLER		SEE CHART	4]
-11 1 DUAL SEAT SEE CHART 6 -13 1 RECEIVER SEE CHART 7 -15 1 TENSIONER SEE CHART 8 B/O -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1 B/O -19 1 CREST TO CREST FLAT WIRE WAVE SPRING STEEL 7.50 OD., .550 ID., WIRE THICK013, THREE TURNS SMALLEY RING CO. #CS075-H1 1 B/O -21 1 INTERNAL SNAP RING STEEL Ø7/8 BORE MCMASTER-CARR #99142A410 1 B/O -23 1 THRUST BEARING (SPRING SIDE) STEEL Ø3/8 ID. x 13/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-613) 1 B/O -25 2 BEARING WASHER STEEL Ø3/8 ID. x 13/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-613) 1 B/O -27 1 THRUST BEARING STEEL Ø1/4 ID. x 11/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 2 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 1 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -31 1 ROLL PIN			-7	1	RIGHT ANGLE ATTACHMENT		SEE TOOL # KSTRA101	1	
-13 1 RECEIVER SEE CHART 7 -15 1 TENSIONER SEE CHART 88 B/O -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1 B/O -19 1 CREST TO CREST FLAT WIRE WAVE SPRING STEEL 7.50 OD., .550 ID., WIRE THICK013, THREE TURNS SMALLEY RING CO. #CS075-H1 1 B/O -21 1 INTERNAL SNAP RING STEEL Ø7/8 BORE MCMASTER-CARR #99142A410 1 B/O -23 1 THRUST BEARING (SPRING SIDE) STEEL Ø3/8 ID. x 13/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-613) 1 B/O -25 2 BEARING WASHER STEEL Ø3/8 ID. x 13/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-613) 1 B/O -27 1 THRUST BEARING STEEL Ø1/4 ID. x 11/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 2 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 1 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -31 1 ROLL PIN			-9	1	STUD		SEE CHART	5	lacksquare
15			-11	1	DUAL SEAT		SEE CHART	6	
B/O -17 1 DISTORTED THREAD LOCK NUT 1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150 1			-13	1	RECEIVER		SEE CHART	7	-
B/O -19			-15	1	TENSIONER		SEE CHART	8]''''
B/O -21		B/O	-17	1	DISTORTED THREAD LOCK NUT		1/4-20 UNC x 7/32 Ht. MCMASTER-CARR #95065A150	1	DWC
B/O -23		B/O	-19	1	CREST TO CREST FLAT WIRE WAVE SPRING	STEEL	.750 OD., .550 ID., WIRE THICK013, THREE TURNS SMALLEY RING CO. #CS075-H1	1] "
B/O -25		B/O	-21	1	INTERNAL SNAP RING	STEEL	Ø7/8 BORE MCMASTER-CARR #99142A410	1	\vdash
B/O -27 1 THRUST BEARING STEEL Ø1/4 ID. x 11/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-411) 1 B/O -29 2 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -31 1 ROLL PIN STEEL Ø1/16 x 3/8 N/S		B/O	-23	1	THRUST BEARING (SPRING SIDE)	STEEL	Ø3/8 ID. x 13/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-613)	1	то
B/O -29 2 BEARING WASHER STEEL Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411) 1 B/O -31 1 ROLL PIN STEEL Ø1/16 x 3/8 N/S		B/O	-25	2	BEARING WASHER	STEEL	Ø3/8 ID. x 13/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-613)	1] .ẍ́
B/O -31 1 ROLL PIN STEEL Ø1/16 x 3/8 N/S		B/O	-27	1	THRUST BEARING	STEEL	Ø1/4 ID. x 11/16 OD. x 5/64 WIDTH APPLIED (TIMKEN #NTA-411)	1	.X. .X
		B/O	-29	2	BEARING WASHER	STEEL	Ø1/4 ID. x 11/16 OD. x 1/32 WIDTH APPLIED (TIMKEN #TRA-411)	1]
ASSY H		B/O	-31	1	ROLL PIN	STEEL	Ø1/16 x 3/8	N/S	L
	ASS\ #	Y							SC.

	BEARINGS & TOO COVERED	OLS
	BEARING #	TOOL#
BACB10	FB04-AMT	KSTFB04P-R
BACB10		
		I

KSTFB##P-R SERIES PORT. RIGHT ANGLE TRI-ROLLER SWAGING TOOLS FOR BACB10FB BEARINGS DWG NO. SEE CHART ABOVE FOR TOOL # REV 1

_		חתט ואטו	J V ∟ I			π	1	
	UNLESS OTHER		DRAWN	DRAWN BY: PERRITT				
	DIMENSIONS A TOLERANCES ON:	IKE IN INCHES	APPRO	VED				
	DECIMALS .XXX ± .005	RACTIONS ± 1/32	HEAT TREAT		SEE P	4RT		
	.XX ± .01 .X ± .1	ANGLES ±.5°	FINISH SPEC		SEE P	4RT		
	UNLESS OTHERW	ISE SPECIFIED		USED ON BEARING				
	1. BREAK ALL SI	HARP EDGES		SEE	CHAR	Γ		
s	.015 x 45° PF 2. DIMENSIONAL LIMITS A							
	SCALE NTS	DATE 3/	/21/0	8 SHE	ET 1	of	8	

	REVISIONS										
REV	DESCRIPTION	DATE	INITIAL	APPR							
_		-	-	_							

WOT APPROVED FOR PRODUCTION RED BARN MACHINE

Ā	SSY ASS	Y B/C	PART#	UNIT	DESCRIPTION	MAT.	B/O INFORMATION OR SPECIFICATIONS	Pg.	- πιε 	
Γ			-1	1	RND	6061	Ø8-1/4 x 3-7/8	2		
									- DWG NO	RE
									UNLESS OTHERWISE SPECIFIED DRAWN BY: PERRITT	
									DIMENSIONS ARE IN INCHES TOLERANCES ON: APPROVED	
									DECIMALS	
									XX ± .01 ANGLES ±.5° SPEC USED ON MODEL	
									1. BREAK ALL SHARP EDGES	
									.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
Γ	ASS	SY							SCALE NTS DATE 8-15-07 SHEET 1 C	f:

REVISIONS								
REV	DESCRIPTION	DATE APPROVED						

NOT APPROVED FOR PRODUCTION

			PAR	Т#	QTY					
			-1	ı	1					
		DRAWN BY: PERRITT			— \ Г		$D \wedge D M$	$\Lambda \Lambda \Lambda \cap$	LITN	
		CHECKED HEAT_		(<u>RB</u>	1 [2	くヒリ	RAKIN	MAL	$\Box\Box\Box$	
		TREAT FINISH SPEC		TITLE						
[USED ON MODEL	UNLESS OTHERWISE SPECIFIE DIMENSIONS ARE IN INCHES	D							
	?	TOLERANCES ON: DECIMALS .XXX ± .005 EDACTIONS + 1						-		
ł		XX ± .005 FRACTIONS ± 1 .XX ± .01 ANGLES ±.6		DWG 1	NO.		PART	#		REV.
f		UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES)				1 1 11 \ 1	11		
		.015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	3	SCALE		NTS	DATE 1-28-0	06 ^{sheet} :	l of	1